

Claims:

What we claim is:

1. A method of measuring color consistency comprising:
 - obtaining a first two-dimensional image and a second two-dimensional image of an object;
 - subdividing the first image into a first set of image partitions and the second image into a second set of image partitions, each image partition having a color;
 - selecting a first subset of image partitions in the first set of image partitions and a second subset of image partitions in the second set of image partitions based upon a criteria related to a three-dimensional region of the object;
 - assigning each image partition in the first subset and each image partition in the second subset a color value corresponding to the color of the image partition;
 - placing each image partition in the first subset in one of a first series of histogram subdivisions and each image partition in the second subset in one of a second series of histogram subdivisions based on the color value of each image partition;
 - comparing the first series of histogram subdivisions to the second series of histogram subdivisions; and
 - processing the region based on whether the first series of histogram subdivisions and the second series of histogram subdivisions have a similarity.
2. The method of claim 1, wherein the obtaining step comprises obtaining images of a scene as the object.
3. The method of claim 1, wherein the subdividing step comprises subdividing the first image into a first set of pixels and the second image into a second set of pixels.
4. The method of claim 1, wherein the selecting step comprises selecting the first subset and the second subset based upon a criteria related to a voxel region of the object.
5. The method of claim 1, wherein the selecting step comprises selecting the first subset and the second subset based upon whether the first subset and the second subset represent locations in the region.
6. The method of claim 1, wherein the assigning step comprises assigning an array value as the color value.

7. The method of claim 6, wherein the assigning step comprises assigning a three-dimensional array value as the array value.
8. The method of claim 7, wherein the assigning step comprises assigning a red-based color value, a green-based color value, and a blue-based color value to the three-dimensional array value.
9. The method of claim 8, wherein the assigning step comprises assigning a number between 0 and 255 to each of the red-based value, the green-based value, and the blue-based value.
10. The method of claim 9, wherein the assigning step further comprises combining a plurality of the red-based values, the green-based values, and the blue-based values into a smaller number of agglomerate values.
11. The method of claim 1, wherein the placing step further comprises combining portions of the first and second series of histogram subdivisions into a first and second series of histogram partitions.
12. The method of claim 11, wherein the combining step comprises combining the first and second series of histogram subdivisions into histogram partitions that at least partially overlap with adjacent partitions.
13. The method of claim 12, wherein the combining step comprises combining the first and second series of histogram subdivisions into histogram partitions that overlap with adjacent partitions by up to 20 percent.
14. The method of claim 1, wherein the comparing step comprises comparing a set of one histogram subdivision in the first series of histogram subdivisions and a corresponding subdivision in the second series of histogram subdivisions to see if each subdivision in the set contains an image partition.
15. The method of claim 1, wherein the obtaining step comprises choosing the object to include Lambertian surfaces.
16. The method of claim 1, further comprising:
 obtaining a third two-dimensional image of the object;
 subdividing the third image into a third set of partitions;
 selecting a third subset of image partitions in the third set of image partitions based upon the criteria related to a three-dimensional region of the object;
 assigning each image partition in the third subset the color value corresponding to the color of the image partition;

placing each image partition in the third subset in one of a third series of histogram subdivisions based on the color value of each image partition;

comparing the third series of histogram subdivisions to the first series of histogram subdivisions and to the second series of histogram subdivisions; and

determining what to do with the region based on whether each of the first, second, and third series of histogram subdivisions has at least one similarity with each of the other histogram subdivisions.

17. The method of claim 1, further comprising assigning a uniform region color to the entire region in the three-dimensional model.
18. The method of claim 1, further comprising deciding not to use the region in the three-dimensional model of the object if the number of image partitions in at least one of the first subset of image partitions and the second subset of image partitions is below a specified number.
19. A computer program product, comprising:
 - a computer-readable medium containing instructions for controlling a computer system to perform a method of measuring color consistency, the method comprising:
 - obtaining a first two-dimensional image and a second two-dimensional image of an object;
 - subdividing the first image into a first set of image partitions and the second image into a second set of image partitions, each image partition having a color;
 - selecting a first subset of image partitions in the first set of image partitions and a second subset of image partitions in the second set of image partitions based upon criteria related to a three-dimensional region of the object;
 - placing each image partition in the first subset in one of a first series of histogram subdivisions and each image partition in the second subset in one of a second series of histogram subdivisions based on the color value of each image partition;
 - comparing the first series of histogram subdivisions to the second series of histogram subdivisions; and
 - including the region in a three-dimensional model of the object if the first series of histogram subdivisions and the second series of histogram subdivisions have a similarity.

20. The computer program product of claim 19, wherein the method further comprises:

- obtaining a third two-dimensional image of the object;
- subdividing the third image into a third set of partitions;
- selecting a third subset of image partitions in the third set of image partitions based upon the criteria related to a three-dimensional region of the object;
- assigning each image partition in the third subset the color value corresponding to the color of the image partition;
- placing each image partition in the third subset in one of a third series of histogram subdivisions based on the color value of each image partition;
- comparing the third series of histogram subdivisions to the first series of histogram subdivisions and to the second series of histogram subdivisions; and
- determining what to do with the region based on whether each of the first, second, and third series of histogram subdivisions has at least one similarity with each of the other histogram subdivisions.